

**Meeting Minutes**  
**HIPPI-6400 Optical Working Group**  
**Tuesday 6 August 1996**  
**Honolulu, Hawaii**

These minutes prepared by Stan Swirhun of Vixel

**Optical Interconnect Kickoff:**

From 8:00 to 9:00 am Tuesday August 6, a kickoff meeting was held to frame the optical discussion that was to proceed that afternoon. Don Tolmie prepared and delivered the only presentation. Don distributed two candidate specifications templates: i) Wide interface Option (22 signals @ 500 Mb/s); ii) High performance Option (12 signals @ 1000 Mb/s) and encouraged the optical group to meet prior to the afternoon session to address how, when and where the template could be filled in. Brief discussion followed.

Steve Joiner proposed a 'pre-meeting' to precede the scheduled 3:00 PM working session; all agreed. Other business:

- 1) Three talks were scheduled for the afternoon session. Joiner (eye-safety), Griffin (vendor comparison), Swirhun (general specifications).
- 2) A discussion on the size of the application base for HIPPI-6400 was held. The driver for this request was the observation that larger HIPPI-6400 market opportunities enable payback of more aggressive approaches. Greg Chesson volunteered to project best case, typical and worst case HIPPI-6400 unit numbers.

**Informal Pre-Meeting:**

An informal pre-meeting was held at 2:00 PM prior to the HIPPI-6400 optical session. At that meeting the schedule and 'tee-up' of HIPPI-6400 issues was discussed. It was agreed that any and all decisions on approaches must be in the scheduled session. Discussion centered around:

- 1) Enumeration of the elements of a HIPPI-6400 optical specification. (Joiner, Szostak)
- 2) Realistic scheduling for establishment of a HIPPI-6400 optical specification. (Swirhun)
- 3) Connector, electrical interface, optical compatibility requirements. (Joiner, Rice, Theorin, Griffin, Szostak)
- 4) Employing the Fibre Channel specification as a template. (Swirhun, Joiner)

Attendance was as follows:

Christie Rice	Honeywell	214-470-4540	crice@p02.tx95.micro.honeywell.com
Dan Brown	AMP	717-986-7812	dan.brown@amp.com
Steve Joiner	HP	408-435-6421	steve_joiner@hp.com
Stan Swirhun	Vixel	303-460-0700	sswirhun@denver.vixel.com
Ali Ghiasi	Sun	415-336-1506	ghiasi@eng.sum.com
Don Knasel	US Conec	704-323-8883	dknasel_conec@msn.com
Carol McGill	Corning	607-974-4939	mcgill_cl@corning.com
Todd Hudson	Siecor	704-327-5815	todd_hudson@siecor.com
Tad Szostak	3M	512-984-3847	tszostak1@mmm.com
Schelto van Doorn	Siemens	608-982-1981	schelto@siemens-fo.com
Craig Theorin	W.L. Gore	302-368-2575	ctheorin@wlgore.com
Michael Griffin	3M	612-733-6004	megriffin@msmail.mmmg.com

**Optical Interconnect Meeting**

The HIPPI-6400 session on optical interconnects convened at 3:00 pm. Don Tolmie presided. Don presented a brief review of results from the Santa Fe meeting, followed by firm encouragement for progress by the group. The sentiment was echoed several times and at elevated intensity levels. Michael Griffin presented and edited a tabulation of candidate vendor approaches for a HIPPI-6400 implementation.

Steve Joiner presented information and constraints imposed by domestic (CDRH) and international (IEC) eye safety specifications upon HIPPI-6400 links. The key point of the ensuing discussion was that satisfying eye safety regulations would result in several simultaneous constraints. These constraints were on: launched optical power, emission NA, number of efibers/emission elements, fiber/emission element spacing, Open Fiber Control, expense of receiver, limitation/reduction in link budget, Class IIIB operation, long versus short wavelength sources, shuttered modules. Two questions were presented to the group and answered:

- i) Shall HIPPI-6400 consider Class IIIB Laser Operation? No.
- ii) Shall HIPPI-6400 consider Open Fiber Control, in the fashion of Fiber Channel? Not preferred, but acceptable as a last resort.

With Stan Swirhun as recorder the remaining two hours of the session proceeded to these conclusions:

- 1) The menu of candidate HIPPI-6400 solutions desired would be narrowed:
  - a) A 'slow' HIPPI-6400 optical interface option: 12 wide at 500 Mb/s
  - b) A 'fast' HIPPI-6400 optical interface option: 12 wide at 1000 Mb/s
  - c) A 'wide' HIPPI-6400 optical interface option: 22 wide at 500 Mb/s
- 2) The optical group present in Honolulu agreed it was willing to address two specs: a) 'fast' and b) 'slow' options. All further discussions, schedules and development at Honolulu would focus on these two.
- 3) IBM, as the champion of option c) should make a presentation at the Sept. interim meeting to establish the viability of the c) approach for HIPPI-6400.
- 4) After several difficult starts the following schedule for HIPPI-6400 Optical was more or less accepted. The group had difficulty targeting concrete goals beyond the connector.

Aug. plenary

HIPPI-6400 schedule and issues generation  
electrical/optical/connector specifications template generation

Sept. interim (via teleconference) and subsequent teleconferences

first pass electrical specifications  
connector criteria enumerated  
review laser safety implications: impact on optical specifications

Oct. plenary

final electrical  
first pass optical specs  
open invitation - candidate connector presentations (samples)

Nov. interim (via teleconference) and subsequent teleconferences

???

Dec plenary

(FIRM!) HIPPI connector decision

- 5) The following evaluation criteria for candidate HIPPI-6400 multifiber connectors was proposed. Further work targeted for Sept. teleconference and follow-ups.

- i) existence: engineering samples by Oct. '96;  
pilot quantities by Dec. '96
- ii) maturity and industry acceptance: existing/imminent standard; ISO?
- iii) attenuation 0.5 dB avg
- iv) return loss -20 dB
- v) mating/demating durability 500 cycles (negotiable)

